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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/523,367	03/10/2000	Hiroaki Kubo	15162/01470	4972

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EXAMINER	
MOE, AUNG SOE	
ART UNIT	**PAPER NUMBER**
2612	8

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/523,367	KUBO, HIROAKI	
	Examiner	Art Unit	
	Aung S. Moe	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) 1-7,13-15 and 17-20 is/are rejected.

7)☐ Claim(s) 8-12 and 16 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The proposed drawing change of Fig. 4 was received on July 13, 2000. Examiner has approved this proposed drawing change of Fig. 4.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 6-7, 13, 14, 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Steinberg et al. (U.S. 6,151,073).

Regarding claim 1, Steinberg '073 discloses digital camera capable of flash photography by illuminating a photographic object (i.e., see Fig. 1), the digital camera comprising:

an image sensor (Fig. 1, the element 30) for sensing an image of the photographic object, the image sensor including a plurality of photoreceptor elements (i.e., noted that the element may be the solid state imaging device, such that CCD sensor; see col. 8, lines 20+), the image sensor being adapted for reading an electrical load accumulation of each of the at least one predetermined photoreceptor element among the plurality of photoreceptor elements (i.e., noted that the CCD sensor of the element 31 contains plurality of pixels; see col. 8, lines 26+);

a detector for detecting an amount of the electrical load accumulation of each of the at least one predetermined photoreceptor element due to light exposure on the at least one predetermined photoreceptor element when using a flash exposure for a duration of the flash exposure, and for outputting a corresponding detection signal (i.e., Figs. 1 & 3; col. 5, lines 10+, col. 6, lines 50+ and col. 8, lines 20+); and

a controller for accomplishing light adjusting control of the flash exposure based on the thus outputted detection signal (i.e., see Figs. 2 and 3; col. 5, lines 30+, col. 6, lines 20+ and col. 7, lines 15+).

Regarding claim 6, Steinberg '073 discloses a digital camera in accordance with claim 1, wherein the outputted detection signal corresponds to an average of the amount of the electrical load accumulation of each of the at least one predetermined photoreceptor element (i.e., noted

the use of a histogram for determining an average intensities of the image data; see Figs. 4A-4B; col. 5, lines 40+, col. 8, lines 20+ and col. 9, lines 20+).

Regarding claim 7, Steinberg '073 discloses a digital camera in accordance with claim 6, wherein the average of the amount of the electrical load accumulation of each of the at least one predetermined photoreceptor element is a weighted average (i.e., noted the use of a histogram for weighting the average intensities of the image data; see Figs. 6A-6B; col. 5, lines 40+, col. 8, lines 20+ and col. 9, lines 20+).

Regarding claim 13, Steinberg '073 discloses a digital camera in accordance with claim 1, wherein a location of each of the at least one predetermined photoreceptor element is adjusted according to photographic conditions (i.e., as discussed in col. 8, lines 40, that the number of sampling pixels selected form the CCD sensor may be arbitrarily selected based on the illumination conditions).

Regarding claim 14, Steinberg '073 discloses a digital camera capable of flash photography by illuminating a photographic object(i.e., see Fig. 1), the digital camera comprising:

a flash unit (Fig. 1, the element 26) for producing a flash exposure including at least one light pulse; an image sensor for sensing an image of the photographic object (Fig. 1, the element 30), the image sensor including a plurality of photoreceptor elements, the image sensor being adapted for reading an electrical load accumulation of each of the at least one predetermined photoreceptor element among the plurality of photoreceptor elements (col. 8, lines 20+);

a detector for detecting an amount of the electrical load accumulation of each of the at least one predetermined photoreceptor element due to light exposure on each of the at least one

predetermined photoreceptor element when using a flash exposure for a duration of the flash exposure, and for outputting a corresponding detection signal (i.e., Figs. 1 & 3; col. 5, lines 10+, col. 6, lines 50+ and col. 8, lines 20+); and

a controller for accomplishing light adjusting control of the flash exposure based on the thus outputted detection signal, the controller controlling a duration of the flash exposure (i.e., see Figs. 2 and 3; col. 5, lines 30+, col. 6, lines 20+ and col. 7, lines 15+).

Regarding claim 17, Steinberg '073 discloses wherein a location of each of the at least one predetermined photoreceptor element is adjusted according to photographic conditions (i.e., as discussed in col. 8, lines 40, that the number of sampling pixels selected form the CCD sensor may be arbitrarily selected based on the illumination conditions).

Regarding claim 18, Steinberg '073 discloses a method for light adjusting control of a digital camera capable of flash photography by illuminating a photographic object (Figs. 1-3), the digital camera (10) including an image sensor with a plurality of photoreceptor elements for sensing an image of the photographic object (Fig. 1, the elements 30), the method comprising the steps of:

accumulating an electrical load due to light exposure of each of at least one predetermined photoreceptor element among the plurality of photoreceptor elements when using a flash exposure (Fig. 2-3; col. 7, lines 15+ and col. 8, lines 20+);

detecting an amount of the thus accumulated electrical load of each of the at least one predetermined photoreceptor (i.e., col. 7, lines 15+ and col. 8, lines 5+);

outputting a detection signal corresponding to the thus detected amount of accumulated electrical load for a duration of the flash exposure (col. 8, lines 20+ and col. 9, lines 5+); and

accomplishing light adjusting control of the flash exposure based on the thus outputted detection signal (i.e., col. 7, lines 19+, col. 9, lines 5+ and col. 11, lines 20+).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4-5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinberg '073 in view of Nakajima (U.S. 6,069,659).

Regarding claims 4 and 5, Steinberg '073 discloses the flash exposure being a plurality of light pulses at predetermined intervals (i.e., noted that during pre-flashing period, a series of one or more flashes are activated during a predetermined intervals based on the predetermined capacitance values has been set by the processor unit 12 in the flash unit 26; see col. 4, lines 30, col. 5, lines 30+ and col. 11, lines 20+), wherein the step of accomplishing light adjusting control includes controlling a number of the plurality of light pulses (i.e., noted that during pre-flashing period, the flash unit 26 is controlled by the processor 12 to provide a series of one or more flashes, thereby the number of flashes pulses are controlled to adjust the flash energy for controlling proper exposure for the Final image data; see col. 4, lines 30, col. 5, lines 30+ and col. 11, lines 20+).

Furthermore, it is noted that although Steinberg '073 shows the plurality of light pulses are controlled during the pre-flashing period as discussed above, Steinberg '073 does not explicitly stated that such light pulses are "high-speed light pulses" as recited in the present claimed invention.

However, using "high-speed light pulses" during pre-flashing period in the digital camera is well known in the art as evidenced by Nakajima '659. In particular, Nakajima '659 shows the use of high-speed light pulses at predetermined intervals during preliminary flashing process (i.e., see Figs. 2 and 4-6 of Nakajima '659; col. 4, lines 15+ and col. 6, lines 5+), wherein the controller (i.e., the CPU 6) accomplishes light adjusting control of the flash exposure by controlling a number of the plurality of high-speed light pulses (i.e., col. 3, lines 25+, col. 4, lines 14+) so that the naked eye cannot feel a flicker, the subject will not have a sense of incongruity and feel the flashing as natural (col. 4, lines 50+). Moreover, Nakajima '659 further suggested that using the high-speed light pulses would increase the accuracy of the distance range of strobe photography (see col. 6, lines 5+).

In view of the above, having the system of Steinberg '073 and then given the well-established teaching of Nakajima '659, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Steinberg '073 as taught by Nakajima '659, since Nakajima '659 stated at col. 6, lines 5+ that such a modification would increase the accuracy of the distance range of strobe photography. Moreover, the subject will not have a sense of incongruity and feel the flashing as natural with the use of high-speed light pulses as taught by Nakajima '659 (i.e., see col. 4, lines 50+ of Nakajima '659).

Regarding claim 20, please see the Examiner's comment with respect to claims 4-5 as discussed above.

6. Claims 2-3, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steinberg '073 in view of Fukuda et al. (U.S. 6,278,490).

Regarding claims 2 and 3, Steinberg '073 discloses the use of a charge couple device image sensor for capturing multiple images during the flashing period for adjusting the exposure of the image data by sampling the amount of the electrical load accumulation (i.e. the charges read out from the sensor 30; see Figs. 3, the steps 70, 86, 94, and 100) from at least one predetermined photoreceptor element of the sensor detected by the processor 12 and the image pickup unit 30 (i.e., see col. 8, lines 15+ of Steinberg '073), and performing cumulative addition of the electrical load accumulation obtained by each reading (i.e., noted that the image data accumulated from the specific group of pixels of the image pickup device 30 may be added during each reading to generated the image data; see col. 8, lines 20+).

Furthermore, it is noted that although Steinberg '073 discloses that a each of the at least one predetermined photoreceptor element is adapted for capturing multiple images during pre-flashing period for control the flash exposure as discussed above, Steinberg '073 does not explicitly stated the "**resetting**" each of the at least one predetermined photoreceptor element during load accumulation to start a new electrical load, and reading the electrical load accumulation prior to each "**resetting**."

However, it is obviously well-known in the art as evidenced by the teaching of Fukuda '490 that the image sensor (i.e., the image sensor 1 as shown in Fig. 1; see col. 1, lines 15+ of

Fukuda '490) is normally reset for each load accumulation of charges (i.e., see col. 1, lines 35+), and charges accumulated in the sensor (i.e., col. 1, lines 14+ of Fukuda '490) are read out before resetting the sensor for another load accumulation of charges for a new electrical load for accumulation charges from an initial state (i.e., noted the use of Vrs for resetting the image sensor for each load accumulation; see Figs. 6 and 7; col. 1, lines 35+, col. 8, lines 5+, col. 10, lines 45+). When the image sensor captures the multiple images (i.e., see Figs. 6 and 7 of Fukuda '490; also noted that multiple images are capturing in the system of Steinberg '073), the image sensor may be repeatedly resetting for accumulation charges in the sensor during each load accumulation, and performing cumulative addition (i.e., noted the use of the image synthesizing unit as taught by Fukuda '490; see col. 12, lines 5+) of the electrical load accumulation obtained by each reading before resetting the sensor for another image load accumulation (i.e., see col. 1, lines 35+, col. 8, lines 5+, col. 10, lines 45+).

In view of the above, having the system of Steinberg '073 and then given the well-established teaching of Fukuda '490, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Steinberg '073 as taught by Fukuda '490, since Fukuda '490 stated at col. 3, lines 10+ that such a modification would provide wide dynamic range thereof.

Regarding claims 15 and 19, please see Examiner's comments with respect to claims 2 and 3 as discussed above.

Allowable Subject Matter

7. Claims 8-12 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Okamura '135, Sugimoto '856, Kitajima '681, Parulski '597, Suzuki '235, Suzuki '333 and Yamamoto '367 show a digital camera capable of flash photography by illuminating a photographic object.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aung S. Moe whose telephone number is 703-306-3021. The examiner can normally be reached on Mon-Fri (9-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9700.

Aung S. Moe
Primary Examiner
Art Unit 2612